Commercialisation: experience from recent Scottish projects

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Running order

- Scottish policy context
- Heat Network Partnership / Scottish Futures Trust
- Low Carbon Infrastructure Transition Programme
- Commercialisation: the journey from OBC to FBC
- Some lessons from recent projects

Scottish policy context

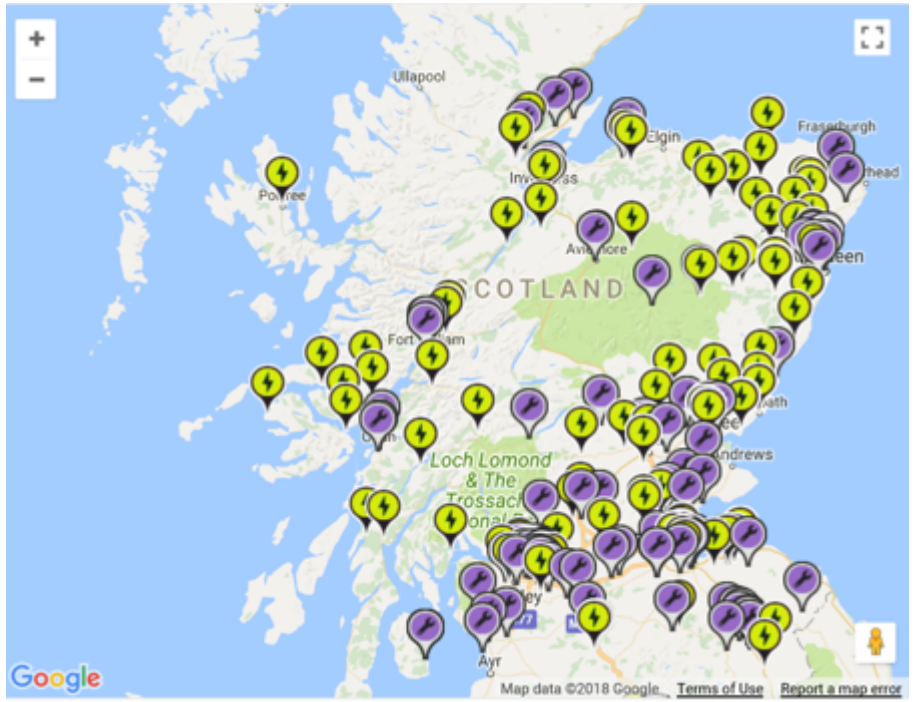
- Reserved & devolved areas
- Scotland specific legislation and policy targets
- Energy Strategy (December 2017)
- Scotland's Energy Efficiency Programme
- Ambition to increase deployment of LC heat networks
- Consultation on Local Heat & Energy Efficiency Strategies and Regulation of District & Communal Heating

(Available at: http://www.gov.scot/Publications/2017/11/6232)

Heat Network Partnership

- Est. by Scottish Government (2013)
- Collaboration of agencies
- Promotion and support of DH
- Partners: SFT, RES, EST, SE.
- Scotland Heat Map
- Tools, guidance, case studies

(Available at http://districtheatingscotland.com)



Work with public & private sectors

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SFT plans

future infrastructure investment

SFT innovates

to secure new ways to fund essential infrastructure

SFT improves

the management of existing properties

SFT delivers

important infrastructure programmes

SFT's work areas

World class infrastructure for the people of Scotland

SFT's role in district heating

- Focussed on business models, funding and financing
- Work with partners to achieve a successful outcome
- Guidance
  - Powers of (Scottish) public bodies / procurement
  - Delivery structures for heat networks
  - Setting up ESCOs
  - Guide for local authority project sponsors
  - Heat supply agreements

Guidance for LA project sponsors

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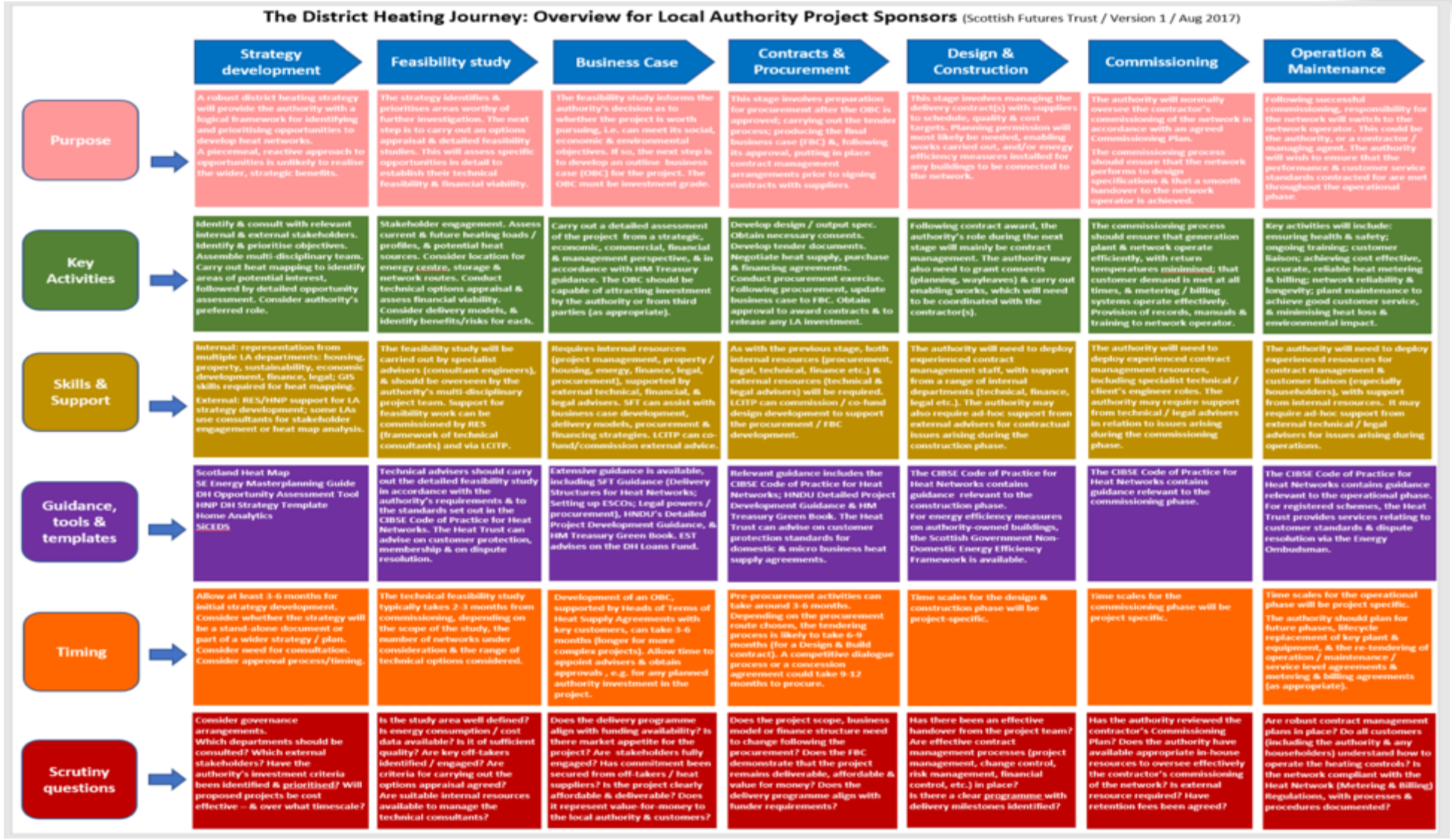

The District Heating Journey: Overview for Local Authority Project Sponsors (Scottish Futures Trust / Version 1 / Aug 2017)

	Strategy development	Feasibility study	Business Case	Contracts & Procurement	Design & Construction	Commissioning	Operation & Maintenance
Purpose	A robust district heating strategy will provide the authority with a logical framework for identifying and prioritising opportunities to develop heat networks. A piecemeal, reactive approach to opportunities is unlikely to realise the wider, strategic benefits.	The strategy identifies & prioritises areas worthy of further investigation. The next step is to carry out an options appraisal & detailed feasibility studies. This will assess specific opportunities in detail to establish their technical feasibility & financial viability.	The feasibility study informs the authority's decision as to whether the project is worth pursuing, i.e. can meet its social, economic & environmental objectives. If so, the next step is to develop an outline business case (OBC) for the project. The OBC must be investment grade.	This stage involves preparation for procurement after the OBC is approved; carrying out the tender process; producing the final business case (FBC) &, following its approval, putting in place contract management arrangements prior to signing contracts with suppliers.	This stage involves managing the delivery contract(s) with suppliers to schedule, quality & cost targets. Planning permission will most likely be needed, enabling works carried out, and/or energy efficiency measures installed for any buildings to be connected to the network.	The authority will normally oversee the contractor's commissioning of the network in accordance with an agreed Commissioning Plan. The commissioning process should ensure that the network performs to design specifications & that a smooth handover to the network operator is achieved.	Following successful commissioning, responsibility for the network will switch to the network operator. This could be the authority, or a contractor / managing agent. The authority will wish to ensure that the performance & customer service standards contracted for are met throughout the operational phase.
Key Activities	Identify & consult with relevant internal & external stakeholders. Identify & prioritise objectives. Assemble multi-disciplinary team. Carry out heat mapping to identify areas of potential interest, followed by detailed opportunity assessment. Consider authority's preferred role.	Stakeholder engagement. Assess current & future heating loads / profiles, & potential heat sources. Consider location for energy centre, storage & network routes. Conduct technical options appraisal & assess financial viability. Consider delivery models, & identify benefits/risks for each.	Carry out a detailed assessment of the project from a strategic, economic, commercial, financial & management perspective, & in accordance with HM Treasury guidance. The OBC should be capable of attracting investment by the authority or from third parties (as appropriate).	Develop design / output spec. Obtain necessary consents. Develop tender documents. Negotiate heat supply, purchase & financing agreements. Conduct procurement exercise. Following procurement, update business case to FBC. Obtain approval to award contracts & to release any LA investment.	Following contract award, the authority's role during the next stage will mainly be contract management. The authority may also need to grant consents (planning, wayleaves) & carry out enabling works, which will need to be coordinated with the contractor(s).	The commissioning process should ensure that generation plant & network operate efficiently, with return temperatures minimised; that customer demand is met at all times, & metering / billing systems operate effectively. Provision of records, manuals & training to network operator.	Key activities will include: ensuring health & safety; ongoing training; customer liaison; achieving cost effective, accurate, reliable heat metering & billing; network reliability & longevity; plant maintenance to achieve good customer service, & minimising heat loss & environmental impact.
Skills & Support	Internal: representation from multiple LA departments: housing, property, sustainability, economic development, finance, legal; GIS skills required for heat mapping. External: RES/HNP support for LA strategy development; some LAs use consultants for stakeholder engagement or heat map analysis.	The feasibility study will be carried out by specialist advisers (consultant engineers), & should be overseen by the authority's multi-disciplinary project team. Support for feasibility work can be commissioned by RES (framework of technical consultants) and via LCITP.	Requires internal resources (project management, property / housing, energy, finance, legal, procurement), supported by external technical, financial, & legal advisers. SFT can assist with business case development, delivery models, procurement & financing strategies. LCITP can co-fund/commission external advice.	As with the previous stage, both internal resources (procurement, legal, technical, finance etc.) & external resources (technical & legal advisers) will be required. LCITP can commission / co-fund design development to support the procurement / FBC development.	The authority will need to deploy experienced contract management staff, with support from a range of internal departments (technical, finance, legal etc.). The authority may also require ad-hoc support from external advisers for contractual issues arising during the construction phase.	The authority will need to deploy experienced contract management resources, including specialist technical / client's engineer roles. The authority may require support from technical / legal advisers in relation to issues arising during the commissioning phase.	The authority will need to deploy experienced resources for contract management & customer liaison (especially householders), with support from internal resources. It may require ad-hoc support from external technical / legal advisers for issues arising during operations.
Guidance, tools & templates	Scotland Heat Map SE Energy Masterplanning Guide DH Opportunity Assessment Tool HNP DH Strategy Template Home Analytics SICEDS	Technical advisers should carry out the detailed feasibility study in accordance with the authority's requirements & to the standards set out in the CIBSE Code of Practice for Heat Networks. The Heat Trust can advise on customer protection, membership & on dispute resolution.	Extensive guidance is available, including SFT Guidance (Delivery Structures for Heat Networks; Setting up ESCOs; Legal powers / procurement), HNDU's Detailed Project Development Guidance, & HM Treasury Green Book. EST advises on the DH Loans Fund.	Relevant guidance includes the CIBSE Code of Practice for Heat Networks; HNDU Detailed Project Development Guidance & HM Treasury Green Book. The Heat Trust can advise on customer protection standards for domestic & micro business heat supply agreements.	The CIBSE Code of Practice for Heat Networks contains guidance relevant to the construction phase. For energy efficiency measures on authority-owned buildings, the Scottish Government Non-Domestic Energy Efficiency Framework is available.	The CIBSE Code of Practice for Heat Networks contains guidance relevant to the commissioning phase.	The CIBSE Code of Practice for Heat Networks contains guidance relevant to the operational phase. For registered schemes, the Heat Trust provides services relating to customer standards & dispute resolution via the Energy Ombudsman.
Timing	Allow at least 3-6 months for initial strategy development. Consider whether the strategy will be a stand-alone document or part of a wider strategy / plan. Consider need for consultation. Consider approval process/timing.	The technical feasibility study typically takes 2-3 months from commissioning, depending on the scope of the study, the number of networks under consideration & the range of technical options considered.	Development of an OBC, supported by Heads of Terms of Heat Supply Agreements with key customers, can take 3-6 months (longer for more complex projects). Allow time to appoint advisers & obtain approvals , e.g. for any planned authority investment in the project.	Pre-procurement activities can take around 3-6 months. Depending on the procurement route chosen, the tendering process is likely to take 6-9 months (for a Design & Build contract). A competitive dialogue process or a concession agreement could take 9-12 months to procure.	Time scales for the design & construction phase will be project-specific.	Time scales for the commissioning phase will be project specific.	Time scales for the operational phase will be project specific. The authority should plan for future phases, lifecycle replacement of key plant & equipment, & the re-tendering of operation / maintenance / service level agreements & metering & billing agreements (as appropriate).
Scrutiny questions	Consider governance arrangements. Which departments should be consulted? Which external stakeholders? Have the authority's investment criteria been identified & prioritised? Will proposed projects be cost effective – & over what timescale?	Is the study area well defined? Is energy consumption / cost data available? Is it of sufficient quality? Are key off-takers identified / engaged? Are criteria for carrying out the options appraisal agreed? Are suitable internal resources available to manage the technical consultants?	Does the delivery programme align with funding availability? Is there market appetite for the project? Are stakeholders fully engaged? Has commitment been secured from off-takers / heat suppliers? Is the project clearly affordable & deliverable? Does it represent value-for-money to the local authority & customers?	Does the project scope, business model or finance structure need to change following the procurement? Does the FBC demonstrate that the project remains deliverable, affordable & value for money? Does the delivery programme align with funder requirements?	Has there been an effective handover from the project team? Are effective contract management processes (project management, change control, risk management, financial control, etc.) in place? Is there a clear programme with delivery milestones identified?	Has the authority reviewed the contractor's Commissioning Plan? Does the authority have available appropriate in-house resources to oversee effectively the contractor's commissioning of the network? Is external resource required? Have retention fees been agreed?	Are robust contract management plans in place? Do all customers (including the authority & any householders) understand how to operate the heating controls? Is the network compliant with the Heat Network (Metering & Billing) Regulations, with processes & procedures documented?

Low Carbon Infrastructure Transition Programme

- ERDF funding
- Partnership between Scottish Government (lead), Scottish Enterprise, Highlands & Islands Enterprise, Scottish Futures Trust and sector specialists.
- Stimulate commercial investment in low carbon
- Range of support mechanisms – project development, expert advice, financial support through targeted calls
- http://www.gov.scot/Topics/Business-Industry/Energy/Action/lowcarbon/LCITP

Transformational Low Carbon Demonstrator Call

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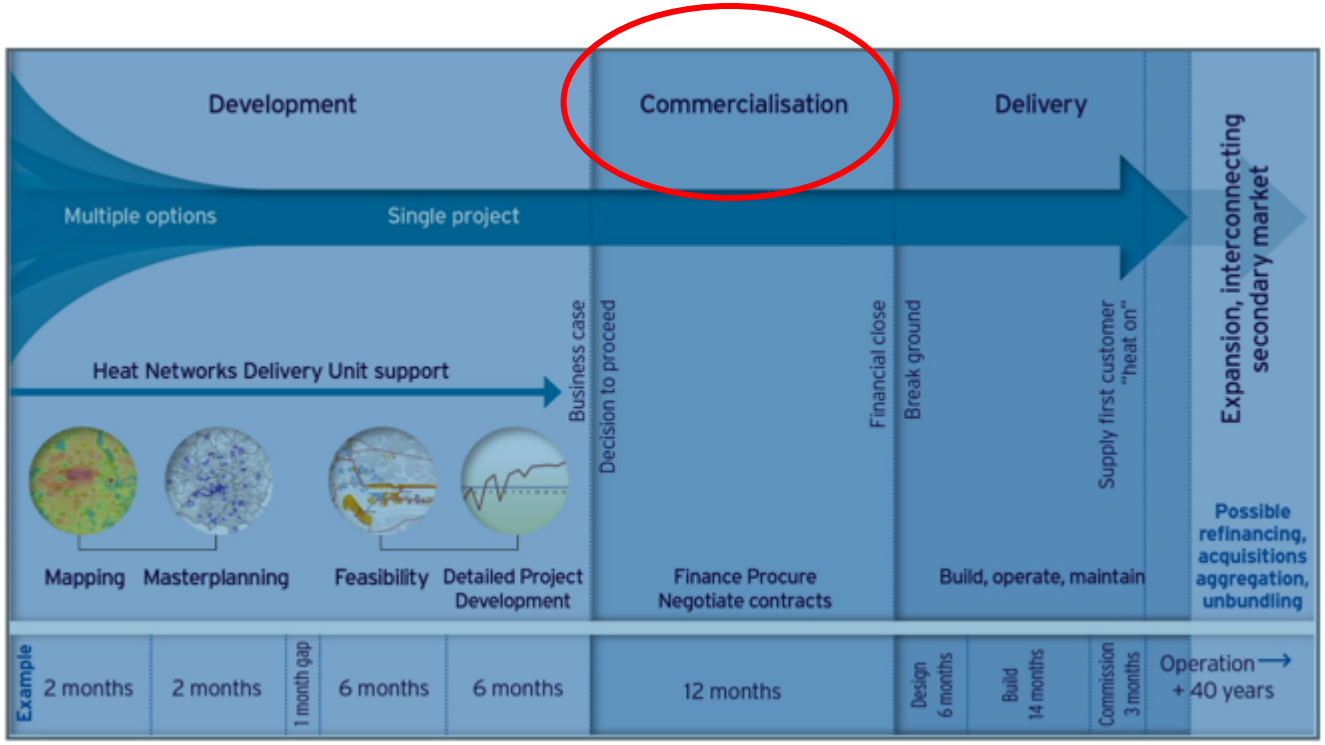
- To accelerate delivery of large scale transformational low carbon infrastructure projects in Scotland
- Requirements: scale, innovative, LC technology, and must demonstrate range of benefits for Scotland
- Expression of interest -> OBC -> Capital support
- Match funding required
- Delivery programme to meet ERDF requirements

Commercialisation: OBC to FBC

- Governance
- Role of advisers
- Contracting structure
- Route to market
- Heat supply agreements
- Risk management
- Sanity checking



Typical heat network development project lifecycle (Source: DBEIS Heat Networks Delivery Unit)

Governance

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- **Leadership** - critical role of SRO
- **Mobilisation** – getting the right team in place (quickly)
- **Objectives**
  - Partner interests aligned?
- **Project Board** – good practice
- **Stakeholder management**
- **Approvals** - choreography

Role of advisers

- Authority as ‘intelligent client’
- Continuity of advisory team
- Joint appointments and managing conflicts of interest
- Budgets
- Managing optimism bias – programme / cost
- Design development versus scope creep
- Asking ‘what if….’

Contracting structure

- **Day 1 solution** – but future proof
- **Partnering** with the private sector
  - Corporate or contractual
- **Allocating risk**
  - Authority risk appetite
  - Optimising value for money
- **Flexibility** - 'standard' risk allocation – but is it right for your project?

Option	Description
1	Entirely public sector led: entirely publicly funded, developed, operated and owned
2	Public sector led: entirely publicly funded, greater use of private sector contractors
3	Public sector led, private sector invests/takes risk in some elements of the project
4	Joint venture – public sector & private sector partners take equity stakes in a special purpose vehicle
5	Public funding to incentivise private sector activity
6	Private sector ownership with public sector providing a guarantee for parts of project
7	Private sector ownership with public sector facilitating by granting land interests
8	Total private sector owned project

Route to market

- Pros and cons of OJEU / frameworks
  - Programme, cost and quality
  - Access to market – demonstrating value for money
  - Supplier engagement process
  - Visibility of sub-contracts
- Evaluation criteria
- Contract award process

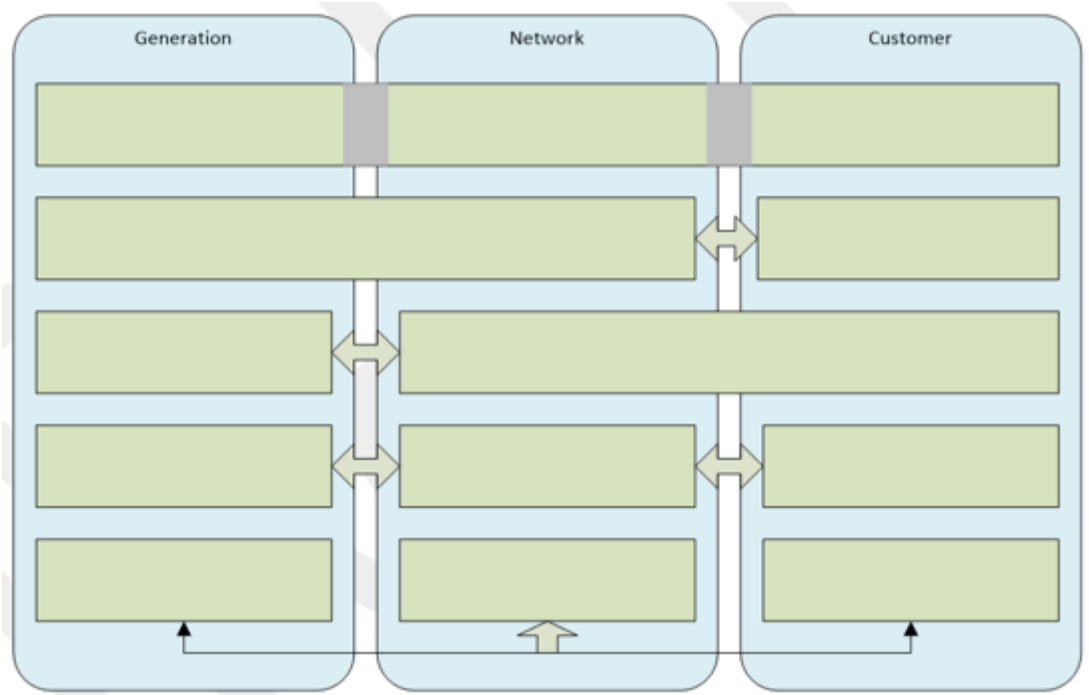
Heat supply agreements (I)

Fundamentals:

- Who am I contracting with?
- Nature of service to be provided?
- What are the service standards?
- How are these enforced?
- Customer & supplier responsibilities
- Physical & control interfaces
- Tariffs – and mechanism for varying

Heat supply agreements (II)

- Network HSA v Customer HSA
- Procurement considerations
- Impact of regulation
- Link to other agreements
- Step-in rights
- Heat Trust
- Contract monitoring
- (New) SFT Guidance



Risk & issue management

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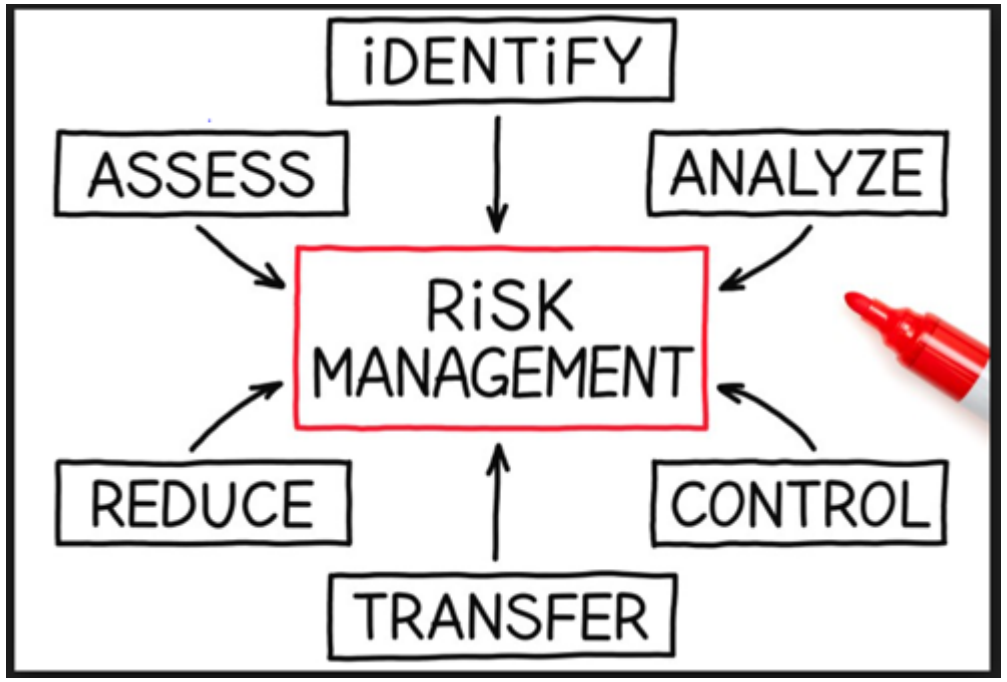
- **Active, rigorous, and creative**
- **Governance** – escalating risks / issue to Project Board
- **Audit trail**
- **Common challenges**:
  - Interfaces
  - Programme
  - Off-take



Sanity check

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FBC should clearly demonstrate:

- project will achieve its objectives
- project will deliver benefits
- risks are well managed

… represents value for money
… is affordable
… is deliverable

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